CLAIMS

1. A method for transforming a program having a first multi-tasking property to a program having a second multi-tasking property, the method comprising:

transforming a first program having a first multi-tasking property into a data structure;

transforming the data structure to include an explicit multi-tasking transfer of control command;

optimizing the data structure to reduce an amount of program state that is saved at a transfer of control; and

generating a second program having a second multi-tasking property using the optimized data structure.

2. The method of claim 1, wherein the data structure further comprises a syntax tree.

3. The method of claim 2, wherein the step of transforming the data structure to include an explicit multi-tasking transfer of control command further comprises:

converting the syntax tree to a continuation-passing style (CPS).

4. The method of claim 1, wherein the first multi-tasking property comprises a property relating to a preemptive multitasking model and the second multi-tasking property comprises a property relating to a run-to-completion model.

5. The method of claim 1, wherein the first program having a first multi-tasking property operates using a first program language and the second program having a second multi-tasking property also operates using the first program language.

6. A system for transforming a program having a first multi-tasking property to a program having a second multi-tasking property, the system comprising:

a data structure transformer for transforming a first program having a first multi-tasking property into a data structure;

a multi-tasking transformer for transforming the data structure to include an explicit multi-tasking transfer of control command;

a program state optimizer for optimizing the data structure to reduce an amount of program state that is saved at a transfer of control; and

a program generator for generating a second program having a second multi-tasking property using the optimized data structure.

7. The system of claim 6, wherein the data structure further comprises a syntax tree.

8. The system of claim 7, wherein the multi-tasking transformer further comprises:

a converter for converting the syntax tree to a continuation-passing style (CPS).

9. The system of claim 6, wherein the first multi-tasking property comprises a property relating to a preemptive multitasking model and the second multi-tasking

property comprises a property relating to a run-to-completion model.

10. The system of claim 6, wherein the first program having a first multi-tasking property operates using a first program language and the second program having a second multi-tasking property also operates using the first program language.

11. An article of manufacture for transforming a program having a first multi-tasking property to a program having a second multi-tasking property, the article of manufacture comprising:

at least one processor readable carrier; and

instructions carried on the at least one carrier;

wherein the instructions are configured to be readable from the at least one carrier by at least one processor and thereby cause the at least one processor to operate so as to:

transform a first program having a first multi-tasking property into a data structure;

transform the data structure to include an explicit multi-tasking transfer of control command;

optimize the data structure to reduce an amount of program state that is saved at a transfer of control; and

generate a second program having a second multi-tasking property using the optimized data structure.

12. A processor readable medium for providing instructions to at least one processor for directing the at least one processor to:

transform a first program having a first multi-tasking property into a data structure;

transform the data structure to include an explicit multi-tasking transfer of control command;

optimize the data structure to reduce an amount of program state that is saved at a transfer of control; and

generate a second program having a second multi-tasking property using the optimized data structure.

13. A signal embodied in a carrier wave and representing sequences of instructions which, when executed by at least one processor, cause the at least one processor to transform a program having a first multi-tasking property to a program having a second multi-tasking property by performing the steps of:

transforming a first program having a first multi-tasking property into a data structure;

transforming the data structure to include an explicit multi-tasking transfer of control command;

optimizing the data structure to reduce an amount of program state that is saved at a transfer of control; and

generating a second program having a second multi-tasking property using the optimized data structure.